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COCCIDAE OF KANSAS.

By GEO. A. DEAN, Assistant Professor of Entomology, Kansas State Agricultural College, Manhattan, Kan.

THE following article is a short bibliography of the Kansas Coccidæ, with the locality and the plants upon which they were taken. Mrs. M. E. Fernald's "Catalogue of the Coccidæ of the World" has been followed with reference to nomenclature. Unless otherwise stated the insects have been collected and determined by the author.

97. *Orthezia graminis* Tins.

Orthezia graminis Tins., Can. Ent., XXXI, p. 13 (1898).

Habitat: Taken on goldenrod, Blue Rapids, Marshall county. Mrs. S. G. Cady, collector. Determined by Prof. S. J. Hunter.

197. *Lecaniodiaspis celtidis* Ckll.

Lecaniodiaspis (*Presopophora*) *celtidis* Ckll., Psyche, VII, Supl., I, p. 19 (1897).

Lecaniodiaspis celtidis Ckll., The Entom., XXX, p. 12 (1897).

Habitat: Osborne. Taken on trunk of *Celtis occidentalis*. Prof. E. A. Popenoe.

204. *Lecaniodiaspis pruinosa* Hunter.

Lecaniodiaspis celtidis subsp. *pruinosa* Hunter, Kan. Univ. Quart., VIII, p. 77 (1899).

Lecaniodiaspis pruinosa Ckll., in litt. (1902).

Habitat: Lawrence. On elm. Professor Hunter.

226. *Solenococcus parrotti* (Hunter).

Lecaniodiaspis parrotti Hunter, Kan. Univ. Quart., VIII, p. 76 (1899).

Solenococcus parrotti Ckll., in litt. (1901).

Habitat: Lawrence. On *Æsculus glabra*. Taken by Professor Parrott.

240. *Kermes concinnulus* Ckll.

Kermes concinnulus Ckll., Can. Ent., XXX, p. 172 (1890).

" " " Psyche, IX, p. 44 (1900).

Habitat: On oak (*Quercus macrocarpa*), Manhattan.

242. *Kermes galliformis* Riley.

Kermes galliformis Riley, Am. Nat., XV, p. 482 (1881).

" " Comst., Rep. U. S. Dep. Ag., 1880, p. 337 (1881).

" " Pack., 5th Rep. U. S. Ent. Com., p. 100 (1890).

" " Lint, 12th Rep. Ins. N. Y., p. 316 (1897).

" " King, Can. Ent., XXXI, p. 139 (1899).

" " Ckll., Psyche, IX, p. 44 (1900).

Habitat: Eastern Kansas. On oaks.

251. *Kermes nivalis* King & Ckll.

Kermes nivalis Ckll., Can. Ent., XXXI, p. 139 (1899).

“ “ King, Psyche, LV, pp. 78, 80 (1900).

“ “ Hunter, Studies Ins. Life, p. 187 (1902).

Habitat: On White oak, Lawrence. Prof. S. J. Hunter.

255. *Kermes pubescens* Bogue.

Kermes pubescens Bogue, Can. Ent., XXX, p. 172 (1898).

“ “ King, Can. Ent., XXXI, p. 139 (1899).

“ “ Ckll., Psyche, IX, p. 44 (1900).

“ “ Hunter, Studies Ins. Life, p. 188 (1902).

Habitat: On twigs and leaves of oak (*Quercus macrocarpa* and *Q. prinoides*), Manhattan.

321. *Eriococcus kemptoni* Parr.

Eriococcus kemptoni Parr., Bull. 98, Kan. Exp. Sta., p. 144 (1900).

Habitat: Collected by J. D. Norton, on *Andropogon scoparius*, Manhattan, and also by R. H. Kempton on the same plant, at Dundee.

343. *Gymnococcus nativus* Parr.

Gymnococcus nativus Parr., Bull. 98, Kan. Exp. Sta., p. 143 (1900).

Habitat: Collected at the base of stems of *Sporobolus cryptandrus*, by H. B. Kempton, at Nickerson.

454. *Pseudococcus citri* (Risso). (Common Mealy-bug).

Dorthesia citri Risso, Essai, Hist. Nat. des Oranges (1813).

Dactylopius destructor Comst., Rep. U. S. Dep. Ag., 1880, p. 342 (1881).

“ *citri* Osborn, Contr. Ia. Ag. Coll., No. 3, p. 2 (1898).

“ “ Gossard, Bull. 51, Fla. Exp. Sta., p. 120 (1900).

Pseudococcus citri Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 41 (1904).

Habitat: Taken on orange and lemon, K. S. A. C. greenhouse.

490. *Pseudococcus longispinus* (Targ.)

Coccus adonidum Riley, 3d Rep. Ins., Mo., p. 96 (1871).

Dactylopius adonidum Comst., Rep. U. S. Dep. Ag., 1880, p. 341 (1881).

“ *longispinus* Osborn, Contr. Ia. Ag. Coll., p. 2 (1898).

“ *longifilis* Newell, Bull. 43, Ia. Exp. Sta., p. 172 (1899).

Habitat: On greenhouse plants. Common in almost every conservatory in the state.

597. *Antonina boutelouæ* Parr.

Antonina boutelouæ Parr., Bull. 98, Kan. Exp. Sta., p. 138 (1900).

Habitat: Collected by H. B. Kempton at the base of stems of *Bouteloua hirsuta*, sand-hills south of Manhattan.

600. *Antonina nortoni* Parr. & Ckll.

Antonina nortoni Parr. & Ckll., Can. Ent., XXXI, p. 280 (1899).

“ “ “ Bull. 98, Kan. Exp. Sta., p. 140 (1900).

Habitat: Collected by J. B. Norton, at the bases of stems of *Bouteloua racemosa*, on Bluemont, Manhattan.

601. *Antonina parrotti* Ckll.

Antonina graminis Parr., Bull. 98, Kan. Exp. Sta., p. 140 (1900).

" *parrotti* Ckll., in litt. (1902).

Habitat: Collected at the base of stems of *Eragrostis trichodes*, by J. B. Norton, at St. George; upon *Bulbilis dactyloides*, south of Manhattan; upon *Eragrostis trichodes*, *E. pectinacea*, *Paspalum ciliatifolium*; on sand-hills south of Hutchinson; and upon *Eragrostis trichodes*, Nickerson, by H. B. Kempton.

666. *Pulvinaria hunteri* King.

Pulvinaria hunteri King, Can. Ent., XXXIII, p. 144 (1901).

Habitat: On maple, at Kansas City, Kan. Also taken on honey-locust, by Prof. S. J. Hunter, at Lawrence.

668. *Pulvinaria innumerabilis* (Rathvon).

Coccus innumerabilis Rath., Penn. Farm Jour., p. 256 (1854).

Lecanium acericorticis Fitch, 6th Rep. Ins. N. Y., p. 775 (1859).

" " Pack., 5th Rep. U. S. Ent. Com., p. 425 (1890).

" *innumerabilis* Lugger, Bull. 43, Minn. Exp. Sta., p. 223 (1895).

" " Pack., 5th Rep. U. S. Ent. Com., pp. 247, 412 (1890).

" " Murtf., Bull. 26, Div. Ent. Dep. Ag., p. 39 (1892).

" " Felt, Bull. 17, n. s., Dep. Ag., p. 22 (1898).

" " Howard, Bull. 22, n. s., Div. Ent., Dep. Ag., p. 7 (1900).

Habitat: Eastern and central Kansas. On maple, hackberry, elm, and sycamore.

681. *Pulvinaria pruni* Hunter.

Pulvinaria pruni Hunter, Kan. Univ. Quart., IX, p. 104 (1900).

Habitat: Kansas. Taken on plum, at Wichita, and determined by Prof. S. J. Hunter. Also taken on White elm.

848. *Coccus hesperidum* (Linn.).

Coccus hesperidum Linn., Sys. Nat., Ed. X, I, p. 455 (1758).

Lecanium " Glover, Rep. U. S. Dep. Ag., p. 44 (1876).

" " Comst., Rep. U. S. Dep. Ag., 358 (1880).

" " Gossard, Bull. 51, Fla. Exp. Sta., p. 113 (1900).

" " Thro., Bull. 209, Corn. Univ. Exp. Sta., pp. 206, 211 (1903).

Habitat: Common greenhouse scale all over the state. On lemon, orange, oleander, ferns, cinnamon tree.

850. *Coccus longulus* (Dougl.).

Lecanium longulum Dougl., Ent. Mon. Mag., XXIV., p. 97 (1887).

" " Ckll., Tr. Am. Ent. Soc., XX, p. 50 (1893).

" " Thro., Bull. 209, Corn. Univ. Exp. Sta., p. 214 (1903).

" " Green, Coc. Ceylon, pt. III, p. 221 (1904).

Habitat: On *Arbutum*, K. S. A. C. greenhouse.

Coccus frontalis (Green).

Lecanium frontale Green, Coc. Ceylon, pt. III; p. 192 (1904).

Habitat: On *Ficus*, K. S. A. C. greenhouse.

911. *Eulecanium armeniacum* (Craw.).

Lecanium armeniacum Craw., Re. Cal. Bd. Hort., p. 12 (1891).

" " Felt, Bull. 17, n. s., Div. Ent., U. S. Dep. Ag., p. 22. (1898).

" " Hunter, Kan. Univ. Quart., VIII, p. 71 (1899).

Eulecanium armeniacum King, Kan. Ent., XXXIV, p. 60 (1902.)

Habitat: Taken by V. L. Kellogg in 1891. On plum, Kan.

913. *Eulecanium aurantiacum* (Hunter).

Lecanium macluræ Hunter, Kan. Univ. Quart., VIII, p. 67 (1899).

" *aurantiacum* Hunter, Kan. Univ. Quart., IX, p. 107 (1900).

Habitat: Barber county, Kansas. On twigs of Osage orange.

916. *Eulecanium canadense* (Ckll.).

Lecanium caryæ var. *canadense* Ckll., Can. Ent., XXVII, p. 253 (1895).

" *canadense*, Ckll., Can. Ent., XXX, p. 294 (1898).

" " Hunter, Kan. Univ. Quart., VIII, p. 68 (1899).

Eulecanium canadense King, Can. Ent. XXXIII, p. 333 (1901).

Habitat: University campus, Lawrence. On elm.

921. *Eulecanium cerasifex* (Fitch).

Lecanium cerasifex Fitch, 3d Rep. Ins. N. Y., p. 368 (1856).

" " Felt, Bull. 17, n. s., Div. Ent., U. S. Dep. Ag., p. 22 (1898).

Lecanium cerasifex Lowe, 16th Rep. N. Y. Exp. Sta., p. 447 (1898).

" " Luggar, 6th Rep. Minn. Exp. Sta., p. 217 (1900).

Eulecanium cerasifex King, Can. Ent., XXXIV, p. 60 (1902).

Habitat: Kansas. Common. Abundant on plum and elm; taken on hackberry and Osage orange.

924. *Eulecanium cockerelli* (Hunter).

Lecanium cockerelli Hunter, Kan. Univ. Quart., VIII, p. 70 (1899).

" " King, Can. Ent., XXXI, p. 252 (1899).

Habitat: Lawrence. Kansas City, Kan. Abundant on upper branches of *Ulmus americanum*. Taken on peach, Kansas City, Kan., April 28, 1908, alive.

942. *Eulecanium kansasense* (Hunter).

Lecanium kansasense Hunter, Kan. Univ. Quart., VIII, p. 69 (1899).

" " King, Can. Ent., XXXIII, p. 107 (1901).

" " King, Can. Ent., XXXIV, p. 60 (1901).

Habitat: Lawrence. Kansas University campus. On *Cercis canadensis*.

993. *Saissetia hemisphærica* (Trag.).

Lecanium hemisphæricum Comst., Rep. U. S. Dep. Ag., 1880, p. 334 (1881).

" " Riley, Ins. Life, I, p. 144 (1888).

" " Coq., Bull. 26, Div. Ent. Dep. Ag., p. 27 (1892).

" *coffeæ* Green, Cocc. Ceylon, pt. I, p. 1 (1896).

" " Ckll., Pr. Acad. Nat. Sci. Ph., p. 270 (1899).

Saissetia hemisphærica King, Psyche, IX, p. 297 (1902).

Habitat: Kansas. Common greenhouse pest on ferns, oleanders.

998. *Saissetia oleæ* (Bern).

Chermes oleæ Bern., Mem. d'Hist. Nat. Acad., Marseille, p. 108 (1782).

Lecanium oleæ Comst., Rep. U. S. Dep. Ag., 1880, p. 336 (1881).

“ “ Koebele, Bull. 21, Div. Ent. Dep. Ag., p. 15 (1890).

“ “ Thro., Bull. 209, Corn. Univ. Exp. Sta., p. 214 (1903).

Habitat: On flowering maple and oleanders in Kansas State Agricultural College greenhouse.

1015. *Aclerda californica* (Ehrh.).

Nidularia (?) *californica* Ehrh., Can. Ent., XXXI, p. 103 (1899).

Pseudolecanium californicum Parr., Bull. 98, Kan. Exp. Sta., p. 145 (1900).

Habitat: At the base of the stems of *Andropogon furcatus* upon sand-hills south of Manhattan (Parrott) and near St. George (J. B. Norton).

1018. *Aclerda obscura* (Parrott).

Pseudolecanium obscurum Parr., Bull. 98, Kan. Exp. Sta., p. 144 (1900).

Habitat: At the base of the stems of *Andropogon scoparius* at Lost Springs, Parsons, Fredonia, and upon *Sporobolus longifolius*, Green Mound (Parrott).

1036. *Chionaspis americana* Johnson.

Chionaspis americana Johns., Ent. News, VII, p. 150 (1896).

“ “ Cooley, Spec. Bull. Mass. Exp. Sta., p. 41 (1899).

“ “ Hunter, Kan. Univ. Quart., IX, p. 102 (1900).

“ “ Sanders, Cocc. O., Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 43 (1904).

Habitat: Well distributed all over the state on *Ulmus americana*.

1045. *Chionaspis corni* Cooley.

Chionaspis corni Cooley, Spec. Bull. Mass. Exp. Sta., p. 15 (1889).

“ “ King, Can. Ent., XXX, p. 61 (1902).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 45 (1904).

Habitat: Taken on willow along the Kansas river, Riley county.

1055. *Chionaspis furfura* (Fitch).

Aspidiotus furfurus Fitch, 3d Rep. Ins. N. Y., p. 352 (1856).

“ cerasi Fitch, 3d Rep. Ins. N. Y., p. 368 (1856).

Chionaspis furfurus Webster, Bull. 45, Ohio Exp. Sta., p. 208 (1892).

“ furfura Cooley, Spec. Bull. Mass. Exp. Sta., p. 23 (1899).

“ “ Forbes, 22d Rep. Ins. Ill., p. 118 (1903).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 47 (1904).

Habitat: On apple, Harper and Kansas City, Kan.; and on mulberry, Hutchinson.

1063. *Chionaspis longiloba* Cooley.

Chionaspis longiloba Cooley, Spec. Bull. Mass. Exp. Sta., p. 16 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Acad. Sci., IV, Sp. Papers No. 8, p. 47 (1904).

Habitat: Taken on cottonwood along south side of campus, K. S. A. C., by C. H. Withington; taken on cottonwood, Goodland, by T. J. Headlee.

1071. *Chionaspis ortholobis* Comst.

Chionaspis ortholobis Comst., Rep. U. S. Dep. Ag., 1880, p. 317 (1881).

“ “ Cooley, Spec. Bull. Mass. Exp. Sta., p. 17 (1899).

“ “ Hunter, Kan. Univ. Quart., IX, p. 101 (1900).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 48 (1904).

Habitat: Taken by Parrott on cottonwood, Riley county.

1073. *Chionaspis pinifoliae* (Fitch). (The pine-leaf scale.)

Aspidiotus pinifoliae Fitch, 2d Rep. Ins. N. Y., p. 488 (1855).

Mytilaspis “ LeBaron, 1st Rep. Ins. Ill., p. 83 (1871).

Chionaspis “ Comst., Rep. U. S. Dep. Ag., 1880, p. 318 (1881).

“ “ Cooley, Spec. Bull. Mass. Exp. Sta. p. 30 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV., Sp. Papers No. 8, p. 49 (1904).

Habitat: Taken by Parrott on pine, K. S. A. C. campus; Riley county, Kansas; Blue Rapids.

1075. *Chionaspis platani* Cooley.

Chionaspis platani Cooley, Spec. Bull. Mass. Exp. Sta., p. 36 (1899).

“ “ Hunter, Kan. Univ. Quart., IX, p. 103 (1900).

“ “ Kuw., Pr. Cal. Acad. Sci. (3) III, p. 77 (1902).

Habitat: Riley county, on sycamore. Collected by Parrott. The only locality in which this species is known to occur in America is Riley county, Kansas.

1082. *Chionaspis salicis-nigræ* (Walsh.)

Aspidiotus salicis-nigræ Walsh, 1st Rep. Nox. Ins. Ill., p. 40 (1868).

Chionaspis salicis Comst., Rep. U. S. Dep. Ag., 1880, p. 320 (1881).

“ *salicis-nigræ* Cooley, Spec. Bull. Mass. Exp. Stat., p. 19 (1899).

“ “ Hunter, Kan. Univ. Quart. IX, p. 101 (1900).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 49 (1904).

Habitat: Taken by Parrott on willows along the Blue river and on Mount Prospect, Riley county.

1096. *Diaspis boisduvalii* Sign.

Diaspis boisduvalii Sign., Ann. Soc. Fr., (4), IX, p. 432 (1869).

“ “ Comst., 2d Rep. Ent. Corn. Univ., p. 86 (1883).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 51 (1904).

Habitat: Taken on palms, K. S. A. C. greenhouse.

1103. *Diaspis echinocacti cacti* Comst.

Diaspis cacti Comst., 2d Rep. Dep. Ent. Corn. Univ., p. 91 (1883).

“ “ Ckll., Can. Ent., XXV, p. 127 (1894).

“ “ Lugger, 6th Rep. Minn. Exp. Sta., p. 235 (1900).

“ *echinocacti cacti* Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 52 (1904).

Habitat: Taken on cactus, Farman's greenhouse, Manhattan. Abundant.

1127. *Aulacaspis rosæ* (Bouche). (Rose scale.)

Aspidiotus rosæ Bouche, Naturg. Ins., p. 14 (1834).

Diaspis rosæ Comst., Rep. I. S. Dep. Ag., 1880, p. 312 (1881).

Aulacaspis rosæ Banks, Bull. 34, n. s., Div. Ent. Dep. Ag., p. 23 (1902).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 53 (1904).

Habitat: Taken on roses, blackberry, raspberry, Manhattan. Abundant.

1143. *Hemichionaspis aspidistræ* (Sign.).

Chionaspis aspidistræ Sign., Ann. Soc. Ent. Fr. (4), IX, p. 443 (1869).

“ *brasiliensis* Comst., 2d Reg. Dep. Ent. Corn. Univ., p. 109 (1883).

“ *aspidistræ* Ckll., Pr. U. S. Nat. Mus., XVII, p. 620 (1895).

“ “ Green, Cocc. Ceylon, pt. II, p. 110 (1899).

Hemichionaspis aspidistræ Cooley, Spec. Bull. Mass. Exp. Sta., p. 45 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 54 (1904).

Habitat: Taken on ferns in Baxter's greenhouse and Moore's greenhouse, Manhattan.

1199. *Aspidiotus æsculi solus* Hunter.

Aspidiotus æsculi subsp. *solus* Hunter, Kan. Univ. Quart., VIII, p. 12 (1899).

“ “ Newell, Contr. Ia. Ag. Coll., No. 3, p. 13 (1899).

Habitat: Taken on *Juglans nigra*, Kan. Univ. campus, Lawrence, by Prof. S. J. Hunter.

1200. *Aspidiotus ancyclus* (Putn.). (Putman's scale.)

Aspidiotus ancyclus Putn., Pr. Davenport Acad. Nat. Sci., II, p. 346 (1879).

Diaspis ancyclus Putn., Trans. Ia. Hort. Soc., XII, p. 321 (1887).

Aspidiotus “ Comst., Rep. U. S. Dep. Ag., 1880, p. 292 (1881).

“ “ Hunter, Kan. Univ. Quart., VIII, p. 4 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 57 (1904).

Habitat: Riley, Douglas, Ford, Edwards, Sedgwick and Wyandotte counties. On oak, maple, mountain ash, *Ptelea*.

1216. *Aspidiotus cyanophyli* Signoret.

Aspidiotus cyanophyli Sign., Ann. Soc. Ent. Fr., (4), IX, p. 119 (1869).

“ “ Comst., 2d Rep. Corn. Univ. Dep. Ent., p. 59 (1883).

“ “ Ckll., Bull. 6, Tec. s., Dep. Ag., p. 29 (1897).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 59 (1904).

Habitat: K. S. A. C. greenhouse. On *Ficus*, palms; on umbrella-plant, Lewis, Kan.

1217. *Aspidiotus cydoniæ* Comst.

Aspidiotus cydoniæ Comst., Rep. U. S. Dep. Ag., 1880, p. 295 (1881).

“ “ Green, Cocc. Ceylon, pt. I, p. 62 (1896).

“ *grenii* Hunter, Kan. Univ. Quart., VIII, p. 11 (1899).

Habitat: Taken on palms in greenhouse, K. S. A. C.; taken on palm, *Howea belmoreana*, by Professor Hunter, University greenhouse, Lawrence.

1226. *Aspidiotus fernaldi albiventer* Hunter.

Aspidiotus fernaldi subsp. *albiventer* Hunter, Kan. Univ. Quart., VIII, p. 6 (1899).

“ “ “ cockerelli Parr., Can. Ent., XXXI, p. 10 (1899).

“ “ “ albiventer Newell, Contr. Ia. Ag. Coll., No. 3, p. 19 (1899).

Habitat: Riley and Douglas counties. On trunks of soft maple.

1229. *Aspidiotus forbesi* Johnson. (Cherry scale.)

Aspidiotus forbesi Johns., Ent. News, VII, p. 151 (1896).

“ “ Forbes, 20th Rep. Ins. Ill., p. 16 (1898).

“ “ Hunter, Kan. Univ. Quart., VIII, p. 3 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 60 (1904).

Habitat: Riley, Ford, Finney, Shawnee, Douglas, Cloud, Seward, Reno, Sedgwick and Wyandotte counties. On apple, plum, crab-apple, peach, pear, cherry, currant, apricot, ash.

1233. *Aspidiotus hederæ* (Vall.). (Oleander scale.)

Chermes hederæ Vall., Mem. Acad. Dijon., p. 30 (1829).

Aspidiotus nerii Comst., Rep. U. S. Dep. Ag., 1880, p. 301 (1881).

“ *hederæ* Ckll., Ent. News, V, p. 211 (1894).

“ *nerii* Osborn, Contr., Ia. Ar. Coll., p. 7 (1898).

“ *hederæ* var. *nerii* Hunter, Kan. Univ. Quart., VIII, p. 11 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 62 (1904).

Habitat: Taken on *Areca lutescens*, oleander, K. S. A. C. greenhouse; on oranges in the market; on oleander, Atchison, Kan., by Professor Hunter.

1239. *Aspidiotus juglans-regiæ* Comst. (English Walnut scale).

Aspidiotus juglans-regiæ Comst., Rep. U. S. Dep. Ag., 1880, p. 300 (1881).

“ “ “ Hunter, Kan. Univ. Quart., VIII, p. 8 (1899).

“ “ “ Sanders, Cocc. Ohio, Pr. Acad. Sci., IV, Sp. Papers No. 8, p. 62 (1904).

Habitat: Taken by Professor Hunter on a young crab-apple tree, Lawrence. On peach, Ashland bottom, Manhattan. Quite common.

1241. *Aspidiotus lataniæ* Sign.

Aspidiotus lataniæ Sign., Ann. Soc. Ent. Fr., (4), IX, p. 124 (1869).

“ “ Newell, Contr. Iowa Ag. Coll., No. 3, p. 31 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 63 (1904).

Habitat: Taken on palm, Baxter's greenhouse, Manhattan; on rose, Moore's greenhouse, Manhattan.

1250. *Aspidiotus osborni* Newell & Ckll.

Aspidiotus osborni Newell & Ckll., Rep. Iowa Acad. Sci., V, p. 229 (1898).

“ “ Hunter, Kan. Univ. Quart., VIII, p. 5 (1899).

“ “ Newell, Bull. 43 Iowa Exp. Sta., p. 165 (1899).

Habitat: Taken on honey-locust by Professor Popenoe at Dodge City; on *Quercus alba* by Professor Hunter at Lawrence.

1252. *Aspidiotus ostreæformis* Curt. (Pear-tree oyster scale.)

- Aspidiotus ostreæformis* Curt. (Ruricola), Gard. Chron., III, p. 805 (1843).
 " " Felt, Bull. 46, N. Y. St. Mus., pp. 323, 352 (1901).
 " " Banks, Bull. 34, n. s., Div. Ent. Dep. Ag., p. 18 (1902).
 " " Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 64 (1904).

Habitat: Taken by Parrott, Manhattan.

1256. *Aspidiotus perniciosus* Comst. (San Jose scale.)

- Aspidiotus perniciosus* Comst., Rep. U. S. Dep. Ag., 1880, p. 304 (1881).
 " " Howard, Yearbook U. S. Dep. Ag., p. 267 (1894).
 " " Howard, Bull. 12, n. s., Div. Ent. U. S. Dep. Ag. (1898).
 " " Webster, Bull. 72, Ohio Exp. Sta., p. 211 (1896).
 " " Felt, Bull. 46, N. Y. St. Mus., pp. 304, 349 (1901).
 " " Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 65 (1904).
 " " Surface, Mo. Bull. Div. Zool., Pa. Dep. Ag., III, p. 304 (1906).
 " " Popenoe, Press Bull. 150, Kan. Exp. Sta. (1906).

Habitat: Taken on apple, Osage orange, peach, grape, cottonwood, Dodge City (abundant on trees in the city), April, 1906, by Prof. E. A. Popenoe. Taken on apple at Alden, July, 1906. Taken on apple and peach at Kansas City, Kan., March 12, 1907, by Prof. E. A. Popenoe. Taken on apple at Hutchinson, December, 1908 (sent to the Department of Entomology, Kansas Experiment Station). Taken on apple, peach, plum, at Wichita, April 12, 1907. Taken on apple at Larned, December 3, 1908 (sent to the Department of Entomology). Taken on apple and rose at Haysville, January 13, 1907. Taken on apple, peach, plum, grape, etc., Kansas City, Kan., 1908.

1261. *Aspidiotus rapax* Comst. (Greedy scale.)

- Aspidiotus rapax* Comst., Rep. U. S. Dep. Ag., 1880, p. 307 (1881).
 " camelliæ Green, Cocc. Ceylon, pt. I, p. 60 (1896).
 " rapax Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 67 (1904).

Habitat: Taken on oranges in the market, Manhattan; on orange fruit in K. S. C. A. greenhouse.

1270. *Aspidiotus ulmi* Johnson.

- Aspidiotus ulmi* Johns., Bull. Ill. St. Lab. Nat. Hist., IV, p. 388 (1896).
 " " Hunter, Kan. Univ. Quart., VIII, p. 6 (1899).
 " " Sanders, Cocc. Ohio, Pr. Acad. Sci., IV, Sp. Papers No. 8, p. 67 (1904).

Habitat: Taken on trunks of elm and catalpa, Lawrence, by Professor Hunter; on elm, at Topeka, by E. A. Popenoe; on elm and catalpa, K. S. A. C. campus, Manhattan.

1272. *Aspidiotus uvæ* Comst. (Grape scale.)

Aspidiotus uvæ Comst., Rep. U. S. Dep. Ag., 1880, p. 309 (1881).

“ “ Newell, Contr. Ia. Ag. Coll., No. 3, p. 12 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 68 (1904).

Habitat: On grape-vines, Manhattan, Iola, and Wichita; Wyandotte county.

1294. *Chrysomphalus aonidium* (Linn.).

Coccus aonidium Linn., Syst. Nat., Ed. X, I, p. 455 (1758).

Aspidiotus ficus Comst., Rep. U. S. Dep. Ag., 1880, p. 296 (1881).

Chrysomphalus ficus Ashm., Am. Ent., III, p. 267 (1880).

“ aonidium Ckll., Biol. Centr. Amer., II, pt. 2, p. 25 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 70 (1904).

Habitat: Taken on palms, K. S. A. C.; Baxter's greenhouse, Manhattan.

1295. *Chrysomphalus aurantii* (Mask). (Red scale of California.)

Aspidiotus aurantii Mask., N. Z. Trans., XI, p. 199 (1878).

“ “ Comst., Rep. U. S. Dep. Ag., 1880, p. 293 (1881).

“ “ Green, Cocc. Ceylon, pt. I, p. 58 (1896).

“ “ Marlatt, Yearbook U. S. Dep. Ag., p. 268 (1900).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 71 (1904).

Habitat: Taken on *Opuntia*, K. S. A. C. greenhouse, by J. B. Norton.

1300. *Chrysomphalus dictyospermi* (Morg).

Aspidiotus dictyospermi Morg., Ent. Mon. Mag., XXV, p. 352 (1889).

“ “ Ckll., Can. Ent., XXVI, p. 128 (1894).

“ (Chrysomphalus) dictyospermi Ckll., Bull. 6, U. S. Dep. Ag., p. 23 (1897).

“ dictyospermi Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 71 (1904).

Habitat: On palm in Moore's greenhouse, Manhattan, and lemon leaves, Moore's greenhouse.

1305. *Chrysomphalus obscurus* (Comst.).

Aspidiotus obscurus Comst., Rep. U. S. Dep. Ag., 1880, p. 303 (1881).

“ “ Hunter, Kan. Univ. Quart., VIII, p. 7 (1899).

Chrysomphalus obscurus Leon., Riv. Pat. Veg., VII, p. 205 (1899).

“ “ Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV., Sp. Papers No. 8, p. 72 (1904).

Habitat: On Black oak, Douglas county, by Professor Hunter.

1335. *Targionia helianthi* (Parr).

Aspidiotus (Targionia) *helianthi* Parr., Can. Ent., XXXI, p. 176 (1899).

Habitat: Kansas. On roots of sunflower (*Helianthus*). Taken by Parrott, Hackberry glen, Riley county.

1336. *Targionia marlatti* (Parr).

Aspidiotus (*Targionia*) *marlatti* Parr., Can. Ent., XXXI, p. 282 (1899).

" " " Parr., Bull 98, Kan. Exp. Sta., p. 143 (1900).

Habitat: Kansas. On *Andropogon furcatus*, *A. scoparius*, *Panicum virgatum*, *Chrysopogon*. Taken by J. B. Norton, on Bluemont, Riley county.

1377. *Lepidosaphes beckii* (Newm). (Purple scale.)

Coccus beckii Newm., The Entom., IV, p. 217, Feb. (1869).

Aspidiotus citricola Glover, Rep. U. S. Dep. Ag., 1876, p. 43 (1877).

Mytilaspis citricola Comst., Rep. U. S. Dep. Ag., 1880, p. 321 (1881).

Lepidosaphes beckii Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 73 (1904).

Habitat: Taken on oranges in the market, Manhattan.

1431. *Lepidosaphes ulmi* (Linn). (Oyster-shell scale.)

Coccus ulmi Linn., Syst. Nat. Ed. X, I, p. 455 (1758).

Mytilaspis pomorum Comst., Rep. U. S. Dep. Ag., 1880, p. 325 (1881).

" " Osborn, Contr. Ia. Ag. Coll., p. 4, (1898).

" " Hunter, Kan. Univ. Quart., VIII, p. 14 (1899).

" " Cooley, 6th Rep. Mont. Exp. Sta., p. 85 (1899).

Lepidosaphes ulmi Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 74 (1904).

Habitat: Taken on apple, blackberry, currant, lilac, raspberry. Abundant on lilacs. The lilacs were dying. Manhattan.

1442. *Parlatoria pergandii* Comst. (The chaff scale.)

Parlatoria pergandii Comst., Rep. U. S. Dep. Ag., 1880, p. 327 (1881).

" " Hunter, Kan. Univ. Quart., IX, p. 105 (1900).

" " Sanders, Cocc. Ohio, Pr. Ohio Acad. Sci., IV, Sp. Papers No. 8, p. 75 (1904).

Habitat: On *Agava*, K. S. A. C. greenhouse, and on orange, Waterloo.

1445. *Parlatoria proteus* (Curt.).

Aspidiotus proteus Curt., Gard. Chron., p. 676 (1843).

Parlatoria proteus Comst., 2d Rep. Dep. Ent. Corn. Univ., p. 114 (1883).

" " Hunter, Kan. Univ. Quart., IX, pp. 105, 106 (1900).

Habitat: Taken on *Ficus*, K. S. A. C. greenhouse.